



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246

D5815-1

Job Sheet 207571

POSITIVE  
RECALL

Part No: D5815-1

Job Qty: 8 pcs

Part Name: Hoop



Part Weight: 0 lbs

Status: New

Job Created: 2/27/20

Job Tracking No:

Due Date: 4/27/20

Created By: Jennifer Renwick

Type: Stock

Description:

Note: URF 20-522 DWG 5815 REV.A IPP REV:A NEW ISSUE 20.01.16 JV VERF:DD

Ship Via:

POSITIVE RECALL

EFFECTIVE 3/13/20 AUTH MRL

RELEASED DATE

Priority: Medium

## Bill of Materials

## Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Large Fab - Welded Assy-1	8 pcs	4/27/20	4/27/20	0.00	2.67	Large Fab - 1		
							Large Fab - 10		
							Large Fab - 2		
							Large Fab - 3		
							Large Fab - 4		
							Large Fab - 5		
							Large Fab - 6		
							Large Fab - 7		
							Large Fab - 8		
							Large Fab - 9		
							Large Fab - 11 (Various)		
							Large Fab - 12		
110	QC 5	8 pcs	4/27/20	4/27/20	0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		

DAS  
40  
MAR 19 2020  
9-59

Plex 3/12/20 8:07 AM Dart.lajeunesse.marie



120 Packaging 3-1 - Stock - B4B 8 pcs

4/27/20

0.00 0.00

Packaging 3 - 1 - B4B

Packaging 3 - 2 - B4B

Packaging 3 - 3 - B4B

Packaging 3 - 4 - B4B

Packaging 3 - 5 - B4B

Packaging 3 - 6 - B4B

Packaging 3 - 7 - B4B

Packaging 3 - 8 - B4B

Packaging 3 - 9 - B4B

Packaging 3 - 10 - B4B

Packaging 3 - 11 - B4B

Packaging 3 - 12 - B4B

Packaging 3 - 13 - B4B

Packaging 3 - 14 - B4B

Packaging 3 - 15 - B4B

Packaging 3 - 16 - B4B

Packaging 3 - 17 - B4B

Packaging 3 - 18 - B4B

Packaging 3 - 19 - B4B

Packaging 3 - 20 - B4B

Packaging 3 - 21 - B4B

Packaging 3 - 22 - B4B

Packaging 3 - 23 - B4B

Packaging 3 - 24 - B4B

Packaging 3 - 25 - B4B

Packaging 3 - 26 - B4B

Packaging 3 - 27 - B4B

Packaging 3 - 28 - B4B

Packaging 3 - 29 - B4B

Packaging 3 - 30 - B4B

Packaging 3 - 31 - B4B

Packaging 3 - 32 - B4B

Packaging 3 - 33 - B4B

Packaging 3 - 34 - B4B

Packaging 3 - 35 - B4B

Packaging 3 - 36 - B4B

Packaging 3 - 37 - B4B

MAC

DAS  
21  
9.99

130 QC 21 - SA

8 pcs

4/27/20

0.00 0.00

QC 21 - SA - 21

QC 21 - SA - 70

QC 21 - SA - 53

MAR 20 2020

Part Op 100 - 1- Cut material to 23.75" 2- Bend as per D5815-1 dwg 3- Drill holes with DT10651 as per D5815-1 dwg 4- Leaving Descriptions: extra 1" material on bottom part. To be adjusted on higher assembly. 5- Remove markings on tube 6- Deburr

110 - QC5- Inspect part completeness to step on W/O

120 - Identify as per dwg & Stock Location: WAO04

130 - QC21- Final Inspection - Work Order Release

## Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M4130NTS0.500W.035	4130 Square Tube .500 X .500 X .035W	15.8328 ft (1.9791 ea)	100-Large Fab - Welded Assy-1	5260577

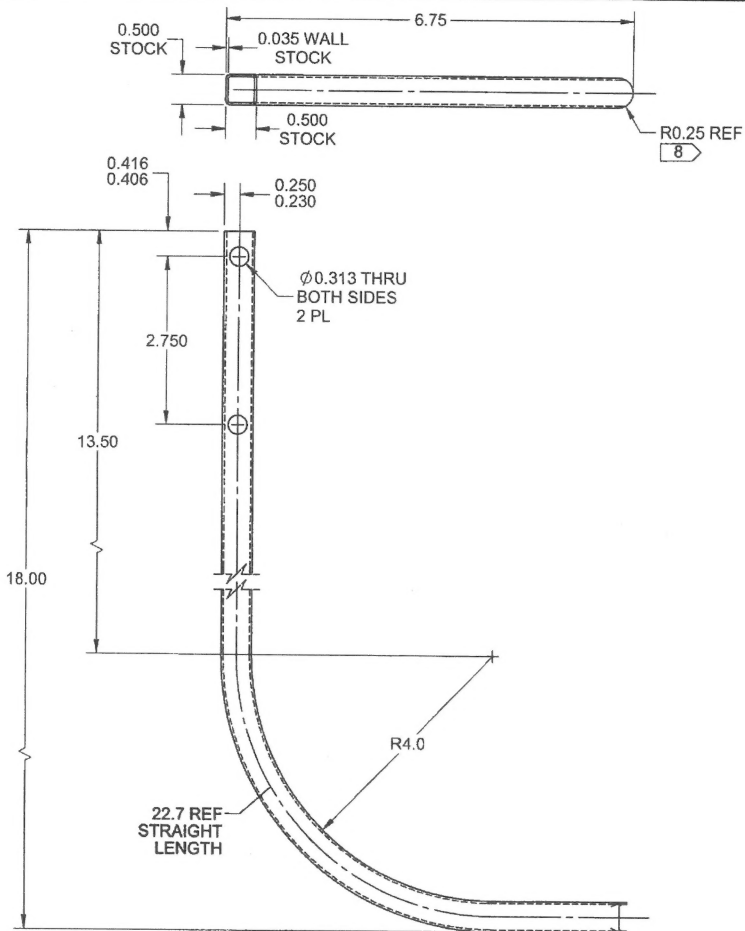
## Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Large Fab - Welded Assy-1	M4130NTS0.500W.035	16	577	0

## Part Specifications

Specifications could not be found.





**D5815-1 HOOP**

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 207511 MWS  
2003-12

UNDER REVIEW

URF 2020-522 20.02.14 (NO)

**NOTES:**

- 1) MATERIAL: AISI 4130N STEEL SQUARE TUBING, 1/2 X 0.035 WALL  
PER MIL-T-6736 OR AMS 6371/6360/6361/6362/6373/6374  
REF DART SPEC M4130N-TS0.500W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.39 lbs
- 8) GRIND END TO FIT SLOT OF D5815-3 HOOP AT ASSEMBLY

**RELEASED**  
2020 FEB 18 NO

APPROVED

DESIGN	ZF	<b>DART AEROSPACE LTD</b>	
DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	KPT	DRAWING NO.	REV. A
MFG. APPR.	DD	<b>D5815</b>	SHEET 2 OF 5
APPROVED	NO	TITLE	SCALE
DE APPR.	CP	<b>BASKET HOOPS</b>	NTS
DATE	20.01.13	<small>COPYRIGHT © 2020 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	





Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **POHB045883**



**Supplier:** FAC001-VU  
Factory Steel  
14020 Oakland Ave.  
Detroit, MI 48203 USA  
Phone: 313 883 6300  
Fax: 313 883 4883

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**PO No:** POHB045883

**PO Date:** 2/18/20

**Due Date:** 2/28/20

**Purchase Order**

**Revision:**

**Revision Date:**

**Issued By:** Lavoie, Chantal  
Phone: 613-623-5200 Ext: 242  
Fax: 613-632-1053  
clavoie@dartaero.com

**Via:** Ground

**Pymt Terms:** Net 30

**Freight Terms:**

**Special Comments:**

**RECEIVED**  
FEB 19 2020

Items													
Line Item	Job	Part	Drawing	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1		M4130NTS0.500W.035			4130 Square Tube .500 X .500 X .035W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft	Firmed	-	2/28/20	600 ft	0 ft	600 ft	\$6.49/ft	\$3,894.00
												611A 603	DAC E 9- MAR 04 2020
Grand Total:												\$3,894.00	

61/1A  
603

MAR 04 2020

## **Order Notes**

### **Procurement Quality Clauses**

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable). No Raw Metals from China or Soviet Bloc Countries. (DFARS)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program.

A049 supplier awareness.

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 2/19/20 2:52 PM Dart.Lavoie.Chantal

# PACKING LIST

No. 67811

PG 1 OF 1

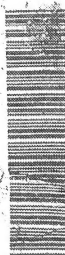


PL

FACTORY STEEL & METAL SUPPLY 14020 OAKLAND AVENUE DETROIT, MI 48203		CUSTOMER PO POHB045883		BUYER CHANTEL LAVOIE		SHIP DATE 02/21/2020	
(313)883-6300 PHONE (313)883-4883 FAX		CUSTOMER JOB		Tel (613) 632-3336 Fax (613) 632-4443		SHIP VIA ****TRUCK****	
SOLD TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7		SALES ORDER 60752		ORDER DATE 02/19/2020		RESALE # 59-2958719	
		SHIP TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7		SALES REP MICK HALON		CARRIER TRUCK	
				SHIP INST CALL WHEN READY		BLIND Y/N N	
				PRO#			
				TERMS NET 30 DAYS		FOB DETROIT	

LINE	QUANTITY	DESCRIPTION	WIDTH	LENGTH	WEIGHT		
1	611.667 FT	PACK IN CARDBOARD TUBE 4130N CD SMLSS SQ TUBE 1/2" X .035W MILT-6736 Tag Mill Ref # Heat 154506 023914 25537 MTRS (CIRCLE) FAX SHIPMENT INVOICE ALL DATE: _____ INITIAL: _____		21' / 24' RL	135.361		
			Pcs Length 27 21' / 24' RL	Feet 611.667	Weight 135.361		

TOTAL WT 135 LBS		RECEIVED BY - SIGNATURE		RECEIVED BY - PRINTED NAME		DATE RECEIVED	
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SO



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130NTS0.500W.035 PO / BATCH NO: PO413045883  
 DATE: MAR 04 2020 5260577

MATERIAL CERT REC'D: YES  
 QUANTITY RECEIVED: 611 FT  
 QUANTITY INSPECTED: 611 FT  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: .500 X .500 W.035  
 THICKNESS RECEIVED: .500 X .500 W.035  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
CORROSION	Y <input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	MIL-T-6736
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
PHOTO REQUIRED	Y <input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	HIT 25537
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>MAR 04 2020</u> <u>DAS</u> DATE: <u>82</u> <span style="font-size: small;">9-89</span>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

LIME1

M4130NTS0.500W.035

POH13045883

**DART**

DESIGN PH	DRAWN BY PH	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED PH	APPROVED PH	DRAWING NO. M4130N-TS	REV. A SHEET 1 OF 1
DATE 05.02.09		TITLE 4130N SQUARE TUBING	SCALE NTS
A	05.02.09	NEW ISSUE	

PURCHASE MATERIAL:

AISI4130N STEEL SQUARE TUBING PER ONE OF  
THE FOLLOWING SPEC'S: MIL-T-6736, AMS 6371,  
6360, 6361, 6362, 6373 OR 6374

PART NUMBER:

M4130N-TS | A.AAA | W | .TTT |

DAS  
82  
3-89

WHERE A.AAA = WIDTH IN INCHES  
TTT = WALL THICKNESS IN INCHES

EXAMPLE: 0.50" X 0.035" WALL = M4130N-TS0.500W.035

RELEASED  
05.03.28

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**PLYMOUTH TUBE CO.**

1209 East 12th Street, Streator, Illinois 61364

Phone: (815) 673-1515 Fax: (815) 672-7343

**TRUST YOUR SOURCE! ACCEPT NO SUBSTITUTIONS!**



# PRODUCT CERTIFICATION

SALES ORDER - LINE / RLS

179687 - 1 / 0

SHIP TO

Factory Steel & Metal Supply C  
14020 Oakland Avenue  
Detroit, MI 48203  
USA

WORK ORDER 023914

HEAT NUMBER 25537

MELT SOURCE Timken Steel - Melt/Mfg. USA

PCS/HEAT 0

DAS

8

9-89

CUSTOMER P.O.	CUSTOMER PART	QUANTITY	LADING NO	CERT ID / REV	CERT DATE
3999	SQ-N12035			/	

**PART DESCRIPTION** SHSQ0500035J200

\*\*\*\*\* Square OD \*\*\*\*\*

Side1: 0.5000 Max:0.5100 Min:0.4900

Side2: 0.5000 Max:0.5100 Min:0.4900

Wall: 0.0350 Max:0.0380 Min:0.0320

Length: 10.06/26.00

Spec: Mil-T 6736B Seamless Aircraft

Grade: 4130

Anneal: Cond N

DAS  
82  
9-89

## CERTIFICATION REQUIREMENTS

FAR BAA (FAR 52.225-1 Buy America Act Supplies), DFARS 252.225-7001 By America Act & Bal. of Payments Program FAR TAA (FAR 52.225-5 Trade Agreements) (Paragraph 1.3.4.5) This material was Eddy Current tested and conforms to the requirements of ASTM A-450. The Grain size is determined and reported by the raw material supplier in accordance to ASTM E-112. This raw material was magnetic particle inspected by the raw material supplier in accordance to AMS 2640J and/or ASTM E-1444, and rated as Frequency, and Severity to AMS 2301, latest revision. Yield is determined by using the 0.2% offset method. Additional Specifications - AMS-T 6736B, 6360P & 6371L. Material produced in accordance to ASTM A-519-17. Jominy results: J(5/16")=38 J(8/16")=31.

## Chemical Analysis

C	Mn	P	S	Si	Al	Cr	Mo	Ni	Pb	Cu	V	Ti	Sn
.30	.56	.008	.005	.29	.025	1.02	.20	.13	.000	.18	.009	.003	.009

## Physical Properties

Freq.	Severity	Grain Size
.000	.000	7

## Mechanical Properties

TEST	UNITS	#TESTS	HIGH	LOW	AVERAGE	STD-DEV
Tensile	Psi	6	121110	115340	118173	2536
Yield	Psi	6	115370	109700	112525	2436
Elongation	%	6	17	17	17	0
Rockwell C	Rc	6	22	22	22	0
<b>TEST</b>	<b>RESULT</b>					
Decarb/OD	Pass					
Total ID/OD decarb	Pass					

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

*Jamie Deross*  
Quality Assurance



**PLYMOUTH TUBE CO.**

1209 East 12th Street, Streator, Illinois 61364  
Phone: (815) 673-1515 Fax: (815) 672-7343

**TRUST YOUR SOURCE! ACCEPT NO SUBSTITUTIONS!**



# PRODUCT CERTIFICATION

SALES ORDER - LINE / RLS

179687- 1 / 0

## SHIP TO

Factory Steel & Metal Supply C  
14020 Oakland Avenue  
Detroit, MI 48203  
USA

WORK ORDER 023914

HEAT NUMBER 25537

PCS/HEAT 0

MELT SOURCE Timken Steel - Melt/Mfg. USA

CUSTOMER P.O.	CUSTOMER PART	QUANTITY	LADING NO	CERT ID / REV	CERT DATE
3999	SQ-N12035			/	

PART DESCRIPTION	SHSQ0500035J200
------------------	-----------------

## Additional Specification(s)

TEST	UNITS	#TESTS	HIGH	LOW	AVERAGE	STD-DEV
Brinell	Brinell	6	251	197	225	27

This test report data is for the heat Chemistry Stated above.

The material in this test report is:

- 1) Drawn in the USA
- 2) Free from Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), and Mercury contamination.
- 3) NAFTA compliant.

DAS  
82  
9-89

End of Certification

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

*Janine Derossuff*  
Quality Assurance



Entered: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. \_\_\_\_\_

Route update only ☐

Job: _____  Part No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/>	<b>DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/> </div> <div>           Eng. (Non-AW) <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Water Jet <input type="checkbox"/>            Supplier <input type="checkbox"/>            Quality <input type="checkbox"/> </div> </div>			
Date :	Sequence #:	QTY Affected :		MRB (QSI042)	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
<b>Root Cause</b>  <div style="display: flex; flex-direction: column;"> <div>Operator <input type="checkbox"/></div> <div>Manufacturing Process <input type="checkbox"/></div> <div>Equip/Tooling <input type="checkbox"/></div> <div>Handling/Presservation <input type="checkbox"/></div> <div>Material <input type="checkbox"/></div> <div>Product Improvement <input type="checkbox"/></div> <div>Process Improvement <input type="checkbox"/></div> <div>Human Factors <input type="checkbox"/></div> </div>		<b>FAULT CATEGORY</b>  <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Pressure/Forced  <input type="checkbox"/> Bending  <input type="checkbox"/> Crushing  <input type="checkbox"/> Cracks  <input type="checkbox"/> Crimp/Kink/Ripple/Wave/Twist  <input type="checkbox"/> Marks/Chatter  <input type="checkbox"/> Mislabeled         </div> <div style="width: 50%;"> <input type="checkbox"/> Contamination  <input type="checkbox"/> Misaligned/off center  <input type="checkbox"/> BOM/Route  <input type="checkbox"/> Broken/Damage/Defect  <input type="checkbox"/> Incomplete/Unclear Instructions  <input type="checkbox"/> Drill Holes  <input type="checkbox"/> Fit/Function         </div> <div style="width: 50%;"> <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Folio/Program  <input type="checkbox"/> Grain Direction  <input type="checkbox"/> Weld  <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Out of Sequence  <input type="checkbox"/> Off-set/Set-up         </div> <div style="width: 50%;"> <input type="checkbox"/> Positioned Wrong  <input type="checkbox"/> Outside Tolerance  <input type="checkbox"/> Drawing  <input type="checkbox"/> Finish  <input type="checkbox"/> Part Lost/Missing  <input type="checkbox"/> Misread         </div> </div>			
Other/Details:					